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March 9, 2016

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HART Rail is not using scientific research and FEMA maps to plan rail routes and is heading directly into an infrastructure train wreck and public safety disaster.

Aloha,

Based upon a huge amount of scientific evidence, reports and studies, there really appears to be a need to revisit the HART Rail EIS in light of updated FEMA flood maps, recent White House Executive Orders and Federal infrastructure funding policy. HART is not complying. Reopening the EIS is an option according to the January 2015 HART Rail Consulting Parties meeting.

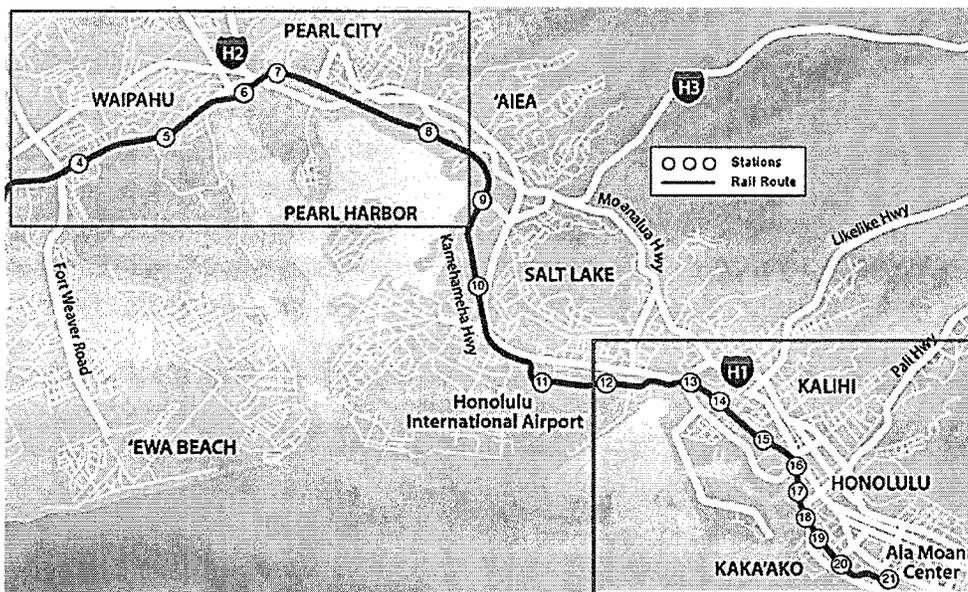
Agency Comments Received on the Final EIS and FTA Responses

- U.S. Department of Homeland Security, Federal Emergency Management Agency (FEMA) – this agency reminded the City that it is a participant in the National Flood Insurance Program (NFIP) and, as such, must comply with NFIP floodplain management building requirements as described in 44 C.F.R. §§ 59 through 65. Compliance with Executive Order 11988, *Floodplain Management*, is addressed in Section 4.14 of the Final EIS. The City will comply with the NFIP requirements in final design.

However the City is NOT complying with NFIP floodplain management and EO 11988

Honolulu transit consultant Parsons Brinckerhoff wrote in the 2003 Final EIS:

"...extreme disruption of existing underground utilities and constant dewatering made necessary by a high water table and poor soils would drive (rail) construction costs to unacceptable levels." -2003 FEIS



Approximately 14 HART Rail Stations and 70% of the Rail route are subject to extreme *floods, tsunami, hurricane storm surge and sea level rise.*

Boxed in RED show the HART rail route sections most affected by floods, tsunami, hurricane storm surge and sea level rise.

There have been some significant changes and updates in 2015 that the HART Rail FEIS did not address. New FEMA Flood Plain maps have been released and President Obama issued EO 13690. Since HART Rail is being built in sections, HART has not adequately addressed the new maps, EO 11988 and EO 13690 in their route and station plans. Especially the DOT requirements Order 5650.2 and FEMA Code of Federal Regulations (CFR) for the National Flood Insurance Program: 44 CFR Parts 59, 60, 65, and 70.

<https://www.fema.gov/national-flood-insurance-program-laws-regulations>

https://www.fema.gov/pdf/floodplain/nfip_sg_appendix_e.pdf

The Floodplains Compliance Process according to all of the online Federal documents can grandfather already built facilities BUT NOT those not yet built. HART Rail is being built in sections and the final construction design plans for most of the flood plain sections have not been issued. There is still time to correct the very badly planned and highly vulnerable rail route.

Elevated Rail Guideway does NOT protect vulnerable station access, parking, utilities support

While the HART rail is on elevated pylons, planned sections 2, 3 and 4 station access are near sea level and in FEMA mapped flood zones. The measured subsurface groundwater level in many areas of downtown Honolulu is just 3-4 feet and steadily rising. Most of the entire HART rail construction geology is in very porous ancient coral limestone reef karst with known subsurface voids, caves and waterways.

Approximately 14 HART Rail Stations and 70% of the Rail route are subject to extreme *floods, tsunami, hurricane storm surge and sea level rise.*



HART Rail stations, access stairs, elevators and escalators and parking facilities will be flooded while sewer, water and power service vaults will be in corrosive salt water.

The December 2015 HART rail Project Management report shows that contractors are having continuous problems with drilled column cement pours. A flood event by either heavy rains, hurricane storm surge or tsunami will create standing salty water far inland. Encroaching sea level rise is also driving the ground water level up further inland.

There MUST be an analysis showing **why** there is **NO OTHER ALTERNATIVE** than the low sea level flood plain route HART Rail is planning into downtown Honolulu. In fact there ARE reasonable alternative routes but they have never been discussed in light of the 2015 FEMA Flood plain maps and the POTUS Executive Order.

Manoa professor Fletcher studies coastal hazards and says 70 percent of beaches on Kauai, Maui, and Oahu are eroding.

<http://khon2.com/2016/03/03/expert-urges-action-as-stronger-el-nino-years-further-coastal-erosion-predicted/>

University of Hawaii at Manoa professor Chip Fletcher predicts stronger El Nino years in the future, which means more beach erosion.

“We’re overdue,” he said. “We need to start making things happen now. We need to catch up.”



Low level water inundation by hurricane storm surge and tsunamis will cause massive electrical, sewer and water damage flooding underground vaults. Powerful sea water forces will knock down structures, slam cars and trucks into structures. *The useful capacity of HART rail to provide operational service in low land flooded areas will be reduced to ZERO.*

The costs to repair and rebuilt will take many years and many billions of dollars. Honolulu cannot expect Federal bailouts as these environmental conditions will be happening all over the United States. Hurricane Sandy, a classic storm surge case, has greatly depleted available FEMA disaster recovery funds. Honolulu will have to expect FEMA recovery fund delays and relatively little funds to rebuilt transportation infrastructure.

The State of Hawaii and the Federal Emergency Management Administration (FEMA) flood maps clearly show major sections of the rail route are in floodplains. The many additional Federal studies on Sea Level Rise, tsunamis and hurricane storm surge all show the same areas - - and MUCH MORE - will inundate with rain and sea water the low level Honolulu ground infrastructure of planned HART Rail stations and Transit Oriented Developments. ***There will be Billions in damage and huge costs to rebuild away from the vulnerable low shoreline.***



HART Rail stations, access stairs, elevators and escalators and parking facilities will be flooded while sewer, water and power service vaults will be in corrosive salt water. Power will be shut off, sewage will spill into the downtown areas and repair costs will be in the billions.

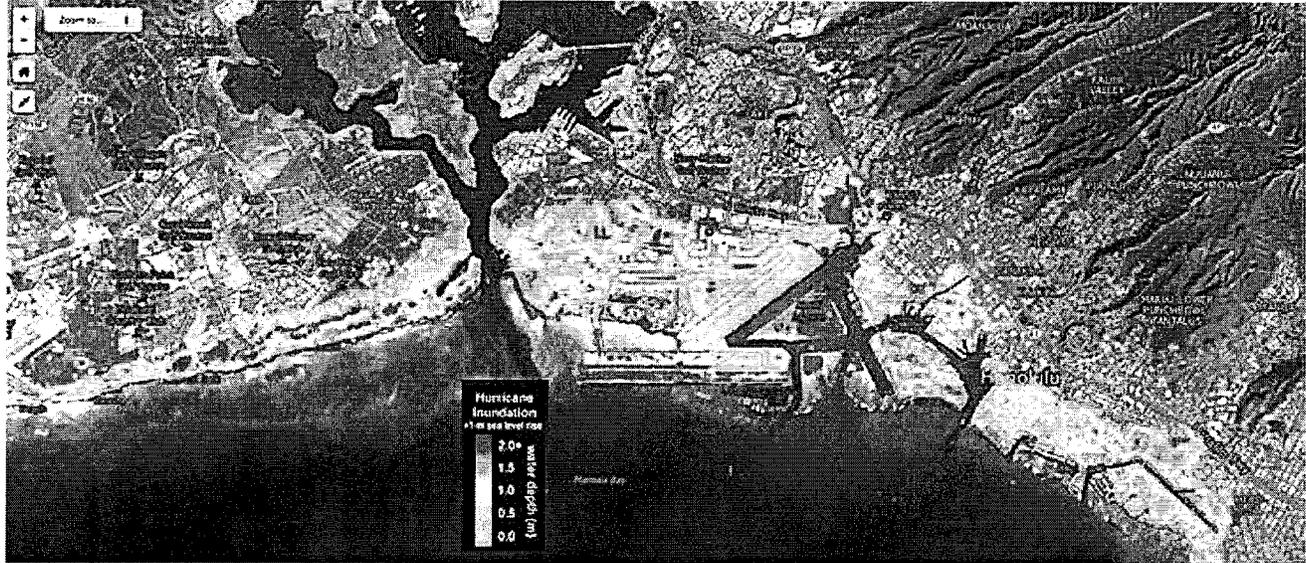
<http://www.soest.hawaii.edu/coasts/sealevel/>

The University of Hawaii SOEST program has provided very extensive details, 3D graphics and animations showing how vulnerable Honolulu low lands are to flooding from sea level rise, hurricane storm surge and tsunamis. Updated new City tsunami maps all show a much greater inland evacuation area than previous maps.

<http://seagrant.soest.hawaii.edu/csp/benifits>

All City, State and Federal data ALL SHOW that building new Federally funded infrastructure in extremely low areas is a MAJOR RISK and alternatives need to be planned as soon as possible.

https://www.honolulu.gov/rep/site/dem/dem_docs/tsunami_evac/etez_final/Index.pdf



The Honolulu project study illustrates the effect of three feet of sea-level rise on the coastal inundation zones (hurricane and tsunami) and showed that 80 percent of the area's economy, nearly half of the population, and much of the infrastructure and land area at risk of coastal inundation.

US DOT Flood Zones

Protection of floodplains and floodways is required by Presidential Executive Order 11988, US DOT Order 5650.2, the Federal Aid Highway Program Manual (FHWA 1992b); and 23 CFR 650 (CFR 1999). These regulations place special importance on floodplains and floodways and require Federal agencies to avoid conducting, allowing, or supporting actions on a floodplain or within a floodway. **If a project is located within a floodplain or floodway, results from sufficient analysis must be included in the project's Final EIS, as specified in USDOT Order 5650.2.**

http://www.fta.dot.gov/printer_friendly/12347_2237.html

"Floodplain Management," places special importance on floodplains and directs federal agencies to avoid conducting, allowing or supporting actions on a floodplain. When contemplating a mass transportation project, maps of the Federal Insurance Administration should be consulted to determine if the proposed project site is located within the 100-year floodplain. [Executive Order 11988 \(PDF\)](#)

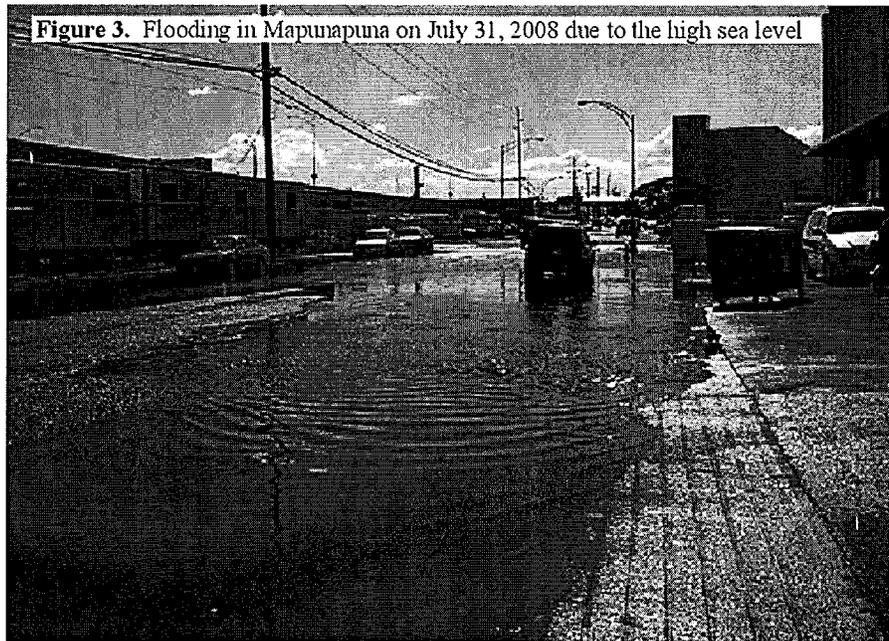
FEMA Flood Insurance Rate Maps (FIRMs) are available for review here:

<https://msc.fema.gov/portal/search> (Hawaii or Honolulu)

<http://qis.hawaiiinfip.org/FHAT/> (This Hawaii site is somewhat easier to use)

Significant floodplain encroachment would involve one or more of the following impacts:

- A considerable probability of loss of human life;
- *Likely future damage associated with the encroachment that could be*
- *substantial in cost or extent, including interruption of service on or loss*
- *of a vital transportation facility; and*
- A notable adverse impact on natural and beneficial floodplain values.



In Mapunapuna small fish including baby Hammerhead sharks have been seen coming up through the storm drains which are directly connected to the ocean.

The Environmental Impact Statement (EIS) document must identify why the Proposed Action is the only practicable alternative, and provide supporting documentation reflecting the consideration of alternatives to avoid or reduce adverse impacts on the floodplain.

THE WHITE HOUSE

January 30, 2015.

On January 30th, President Obama issued Executive Order (EO) 13690 that revises Executive Order 11988 and proposes a new Federal Flood Risk Management Standard (FFRMS).

<https://www.whitehouse.gov/the-press-office/2015/01/30/executive-order-establishing-federal-flood-risk-management-standard-and->

The Federal Government must take action, informed by the best-available and actionable

science, to improve the Nation's preparedness and resilience against flooding. Executive Order 11988 of May 24, 1977 (Floodplain Management), *requires executive departments and agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development wherever there is a practicable alternative.*

As part of a national policy on resilience and risk reduction consistent with my Climate Action Plan, the **National Security Council staff coordinated an interagency effort to create a new flood risk reduction standard for federally funded projects.** The views of Governors, mayors, and other stakeholders were solicited and considered as efforts were made to establish a new flood risk reduction standard for federally funded projects.

Unless an exception is made under paragraph (2), the floodplain shall be:

(i) the elevation and flood hazard area that *result from using a climate-informed science approach that uses the best-available, actionable hydrologic and hydraulic data and methods that integrate current and future changes in flooding based on climate science.* This approach will also include an emphasis on whether the action is a critical action as one of the factors to be considered when conducting the analysis;

"(ii) the elevation and flood hazard area that result from using the freeboard value, reached by adding an additional 2 feet to the base flood elevation for non-critical actions and by adding an additional 3 feet to the base flood elevation for critical actions;

"(iii) the area subject to flooding by the 0.2 percent annual chance flood; or

"(iv) the elevation and flood hazard area that result from using any other method identified in an update to the FFRMS.

Aloha,

A handwritten signature in black ink that reads "John M. Bond". The signature is written in a cursive, flowing style.

John Bond
Kanehili Hui
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